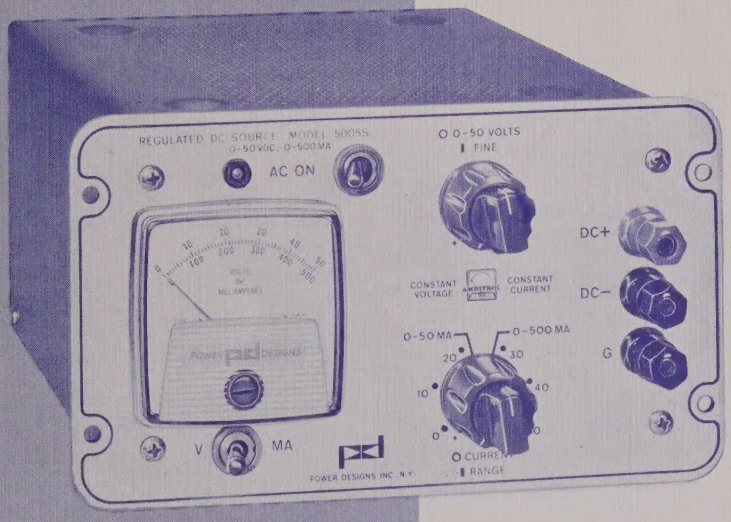
POWER DESIGNS

CONSTANT VOLTAGE–CONSTANT CURRENT POWER SOURCE

TECHNICAL DATA | MODEL 5005S



GENERAL ELECTRIC CO.
Instrument ... & Control
228 W. F... Ave.
Inglewood, Calif. 90301

0–50 VOLTS
0–500 MA

This general-purpose instrument can supply either a constant-voltage output with continuously adjustable current limiting or a constant-current output with continuously adjustable voltage compliance. It will automatically transfer from voltage regulation to current regulation or vice versa at any predetermined operating point.

The source has two current ranges, 50 or 500 MA. When the current range is switched, the current-limit adjustment and the meter range are automatically transferred.

The output voltage and current may be remotely programmed by the connection of an external resistance to a rear-panel terminal strip. This portable instrument is ideally suited for both field and laboratory use. Its design simplicity results in a versatile unit capable of years of trouble-free service.

DESIGN FEATURES

- Dual (coarse and fine) voltage controls with 5 MV resolution.
- Dual range output-current adjustment with 250 μA resolution.
- Self-restoring electronic overload and short-circuit protection.
- All silicon-semiconductor regulator system.
- Front and rear output terminals.
- ...lar construction permits multiple-unit rack mounting. ...plies may be mounted in a standard ...talog sheet RPA-62 for ...
- Processed u... ...er Designs' "Predictable-Reliability" program for a 5-year MTBF. The program features: avalanche-controlled silicon rectifiers, stress-tested transistors, pre-aged zener references with extrapolated stability criteria based on 1/f noise changes, computer-grade capacitors, tin-oxide-film resistors, 5 PPM sealed divider resistors, and components operated at 50% of manufacturers' published ratings. Units pre-aged under full-load conditions for a minimum of 50 hours.

M14664X

SERIAL NO:_____

ELECTRICAL SPECIFICATIONS

INPUT – 105–125 V, 55–440 Hz, 50 W*.

FRONT-PANEL OUTPUT TERMINALS — Three insulated binding posts are provided for positive output, negative output, and chassis ground. Either output terminal may be grounded or the supply output may be left floating.

REAR-PANEL OUTPUT TERMINALS – Screw terminals are provided on a phenolic terminal strip for positive output, negative output, remote voltage programming, and remote current programming.

OPERATING TEMPERATURE RANGE – 0–50°C.

CONSTANT VOLTAGE MODE

RANGE – 0–50 VDC, 0–500 MA, continuously adjustable.

REGULATION – 0.005% + 1 MV for 100% change in rated load or line variations within the operating range.

RIPPLE AND NOISE – 1 millivolt peak-to-peak, 350 microvolts rms.

RESPONSE TIME – Less than 50 microseconds for step change (1-microsecond rise time) in rated load from 10 to 100% or from 100 to 10%.

SOURCE IMPEDANCE – Less than 0.01 ohm at DC, 0.1 ohm at 20 KHz, 0.7 ohm at 1 MHz.

*at nominal line voltage.

STABILITY – Less than 0.02% + 10 MV drift per 24-hour period after warm-up, at fixed line, load, and ambient temperature, and with low TC programming resistance.

TEMPERATURE COEFFICIENT – Less than 0.02% per °C.

REMOTE PROGRAMMING RESISTANCE — 200 ohms/volt.

VOLTAGE CONTROL – Dual concentric coarse and fine adjustment with 5 MV resolution.

CONSTANT CURRENT MODE

RANGE – 0–500 MA, continuously adjustable.

VOLTAGE COMPLIANCE – 50 volts.

REGULATION – Output current change less than 500 microamps for line voltage change of ±10% or load variations down to a short circuit across the output terminals.

RIPPLE AND NOISE – Less than 300 microamps, peak-to-peak.

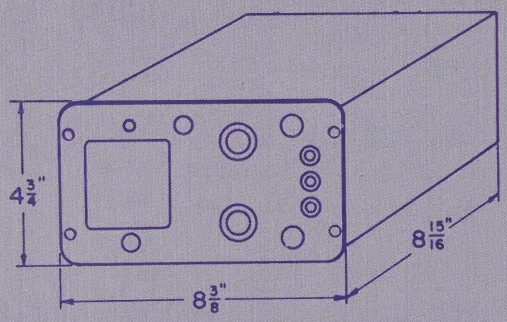
SOURCE IMPEDANCE – Greater than 100,000 ohms.

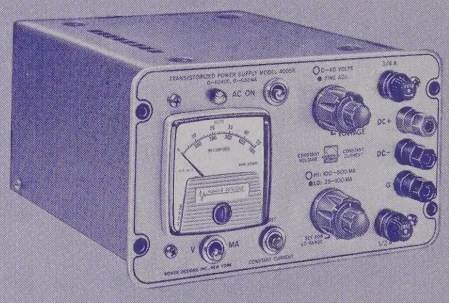
STABILITY – Less than 0.05% + 250 microamps drift per 24-hour period after warm-up, at fixed line, load, and ambient temperature, and with low TC programming resistance.

TEMPERATURE COEFFICIENT – 0.02% + 100 μA per °C.

CURRENT CONTROL – 0–50 MA and 0–500 MA, in two ranges with 0.25 MA resolution on 50 MA range and 2.5 MA resolution on 500 MA range.

DIMENSIONS





MECHANICAL SPECIFICATIONS

DIMENSIONS — 8⅜" x 4¾" x 8 15/16" deep behind front panel.

WEIGHT — 8.5 pounds.

FINISH — Panel is finished in brushed, natural aluminum with etched black lettering. Housing is finished in blue-gray vinyl enamel.

PRICE **$149.50**

FOB Westbury, N. Y.

POWER DESIGNS, INC.

1700 SHAMES DRIVE • WESTBURY, L. I., NEW YORK • 516 ED 3-6200 TWX: 510-222-6561

POWER DESIGNS PACIFIC, INC.

3381 JUNIPERO SERRA • PALO ALTO, CALIFORNIA • 415-321-6111 TWX: 910-373-1251

PRINTED IN U.S.A.

APPENDIX

1. INTRODUCTION

This appendix contains an electrical parts list, schematic diagram, parts location diagram and equipment warranty.

2. ELECTRICAL PARTS LIST

All electrical and electronic parts are listed in the sequence of their circuit numbers, as shown on the schematic diagram. A brief description of each part is given, followed by the code number of the manufacturer and his part number. All manufacturers' code numbers are taken from Cataloging Handbooks H4-1 and H4-2, Federal Supply Code for Manufacturers. These handbooks are available through Federal Agencies. They may also be ordered directly from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

We recommend that all parts having the code number 98095 be ordered directly from Power Designs Inc. The commercial equivalents of these parts have either wide parameter tolerances or require special factory inspection or modification before they are suitable for use in the power supply.

All components used in the power supply or supplied as replacements are carefully inspected at the factory. Inspections are performed on a 100% basis or at AQL levels in accordance with Military Specification MIL-Q-9858 under which Power Designs Inc. has been qualified.

All semiconductors are inspected on a 100% basis. They are inspected not only for operating parameters, but also for critical characteristics related to reliability and predictable life expectancy. Some of these characteristics are observed when the device is taken beyond its normal operating regions. These test techniques have been developed under a "predictable-reliability" program in operation at Power Designs Inc. for the past ten years. Under this program, quality-control procedures are constantly revaluated and updated as new advances are made in solid-state technology and additional experience is gleaned from field history.

Semiconductor manufacturers are constantly modifying their products. Complete lines are frequently discontinued to be replaced by devices having improved gain, operating voltage levels, and frequency response. The high-gain, closed-loop DC amplifiers used in regulator circuits are particularly sensitive to slight changes in these parameters. Commercial or military "equivalent" transistors used as replacements may affect the power supply performance. Compliance with the original specifications can be assured if replacement semiconductors are ordered from the factory.

All replacement semiconductors are processed and stocked at the factory to insure complete interchangeability with the devices in the original equipment. To insure that proper replacements are provided, the original devices are coded with a Power Designs Inc. part number as follows:

MS	1028	A
Semiconductor Manufacturer's Code	Power Designs Inc. Type	Suffix Identifying Special Parameters

When ordering replacements, please identify the device as completely as possible, listing the model and serial number if available.

In some cases the replacement part received may have a different part number from that given in the Electrical Parts List. This can be due to several factors:

a. A different prefix indicates that Power Designs Inc. is using a different vendor source. The operating characteristics of the devices are identical.

b. A completely different part number indicates:

1. The original vendor discontinued manufacture of the item or could no longer manufacture it to the original specifications.

2. A better device for use in the particular circuit has been substituted.

3. Tighter controls for interchangeability have provided greater assurance of improved reliability with the new replacement.

ELECTRICAL PARTS LIST

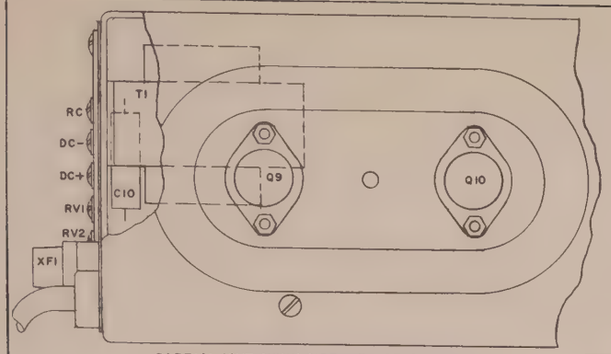
NOTE: When replacing semiconductors or investigating their part numbers, note the information in paragraph 2.

Circuit Number	Description	Mfr Code Number	Part Number
C1	Capacitor, electrolytic, 1200 uf, 30 vdc	98095	CE-109-.3
C2	Capacitor, plastic film, 0.0018 uf, 200 vdc	98095	CP-34-2
C3	Capacitor, tantalex, 4.7 uf, 35 vdc	98095	CE-34-.35
C4	Capacitor, plastic film, 0.001 uf, 200 vdc	98095	CP-24-2
C5	Capacitor, tantalex, 4.7 uf, 35 vdc	98095	CE-34-.35
C6	Capacitor, electrolytic, 400 uf, 100 vdc	98095	CE-83-.85
C7	Capacitor, tantalex, 4.7 uf, 35 vdc	98095	CE-34-.35
C8	Capacitor, electrolytic, 51 uf, 50 vdc	98095	CEX-51-50
C9	Capacitor, electrolytic, 8 uf, 100 vdc	98095	CE-42-1
C10	Capacitor, electrolytic, 51 uf, 50 vdc	98095	CEX-51-50
C11, C12	Capacitor, ceramic disc, 0.02 uf, 500 vdc	98095	CE-42-1
C13	Capacitor, plastic film, 0.01 uf, 200 vdc	98095	CP-16-2
C14	Capacitor, plastic film, 0.0033 uf, 200 vdc	98095	CP-18-2
CR1, CR2	Diode, silicon	98095	GI44
CR3	Diode, silicon, zener	98095	SV359C,D
CR4	Diode, silicon	98095	GI44
CR5	Diode, silicon, zener	98095	SV359Z
CR6, CR7	Diode, silicon	98095	GI44
CR8	Diode, silicon	98095	SV359D
CR9 thru CR16	Diode, silicon	98095	GI44
DS1	Pilot light assembly	98095	PLA-7
F1	Fuse, "Slo-Blo," ½ ampere	71400	Type MDL
F2	Fuse, "Slo-Blo," 3/4 ampere	71400	Type MDL
M1	Meter, dual, voltammeter	98095	MVA110
Q1, Q2	Transistor, silicon, PNP	98095	MS1028A
Q3, Q4	Transistor, silicon, NPN	98095	MS2270/U
Q5	Transistor, silicon, PNP	98095	MS1028A
Q6 thru Q8	Transistor, silicon, NPN	98095	MS2270/U
Q9, Q10	Transistor, silicon, NPN	98095	WS1700A
R1	Resistor, composition, 330 ohms, 10%, 2 w	01121	HB3311
R2	Resistor, composition, 27 megohms, 10%, ½ w	01121	EB2761
R3	Resistor, precision, metal film, 1 k ohm, 1%, ¼ w	98095	RD-102-1QA
R4	Resistor, composition, 2200 ohms, 10%, ½ w	01121	EB2221
R5	Resistor, precision, metal film, 8.25 k ohms, 1%, ¼ w	98095	RD-8251-1QA
R7	Resistor, variable, wirewound, 5 k ohms, 10%, 1¼ w	98095	RWT-502-C4
R8	Resistor, precision, metal film, 4.75 k ohms, 1%, ¼ w	98095	RD-4751-1QA
R9	Potentiometer (part of S2)	98095	B67043
R10	Resistor, precision, metal film, 511 ohms, 1%, ¼ w	98095	RD-5110-1QA
R11	Resistor, composition, 330 k ohms, 5%, ½ w	01121	EB3345
R12	Resistor, precision, metal film, 10 k ohms, 1%, ¼ w	98095	RD-103-1QA
R13, R14	Resistor, precision, metal film, 5.62 k ohms, 1%, ¼ w	98095	RD-5621-1QA
R15	Resistor, precision, metal film, 562 ohms, 1%, ¼ w	98095	RD-5620-1QA
R16	Resistor, composition, 470 ohms, 10%, ½ w	01121	EB4711

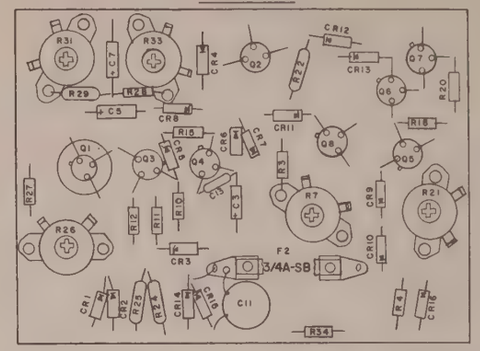
Circuit Number	Description	Mfr Code Number	Part Number
R17	Resistor, composition, 150 ohms, 10%, ½ w	01121	EB1511
R18	Resistor, prec., metal film, 10 k ohms, 1%, ¼ w	98095	RD-103-10A
R19	Resistor, prec., metal film, 20 k ohms, 1%, ¼ w	98095	RD-203-10A
R20	Resistor, prec., metal film, 100 k ohms, 1%, ¼ w	98095	RD-104-10A
R21	Resistor, variable, wirewound, 500 ohms, 10%, 1¼w	98095	RWT-501-C4
R22	Resistor, wirewound, 2 k ohms, 5%, 3 w	98095	RW-202-3KA
R23	Resistor, composition, 47 k ohms, 10%, ½ w	01121	EB4731
R24, R25	Resistor, wirewound, 1 ohm, 5%, 3 w	98095	RW-010-3KA
R26	Resistor, variable, wirewound, 100 ohms, 10%, 1¼w	98095	RWT-101-C4
R27	Resistor, prec., metal film, 301 ohms, 1%, ¼ w	98095	RD-3010-10A
R28	Resistor, prec., metal film, 1 k ohm, 1%, ¼ w	98095	RD-102-10A
R29	Resistor, wirewound, 3 ohms, 5%, 3 w	98095	RW-030-3KA
R30	Resistor, prec., metal film, 34 ohms, 1%, ¼ w	98095	RD-340-10A
R31	Resistor, variable, wirewound, 500 ohms, 10%, 1¼w	98095	RWT-501-C4
R32	Resistor, prec., metal film, 150 ohms, 1%, ¼ w	98095	RD-151-10A
R33	Resistor, variable, wirewound, 1 k ohm, 10%, 1¼w	98095	RWT-102-C4
R34	Resistor, prec., metal film, 49.9 k ohms, 0.5%, ¼w	98095	RD-4992-60A
R35	Potentiometer, wirewound, tandem, 10 k ohms, 5%, 3 w and 100 ohms, 10%, 3 w	98095	RWVT5807
S1	Switch, toggle, SPST	98095	ST-5
S2	Switch, (with R9)	98095	B67043
S3	Switch, toggle, DPDT	98095	ST-16
T1	Transformer	98095	TTM-58

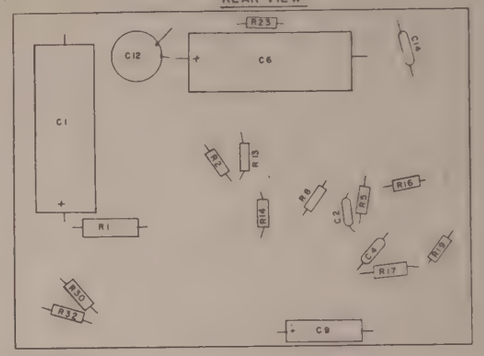
CODE LIST OF MANUFACTURERS

Code Number	Description	Address
01121	Allen-Bradley Company	Milwaukee, Wisconsin
71400	Bussman Manufacturing Div.	St. Louis, Missouri
98095	Power Designs Inc.	Westbury, New York

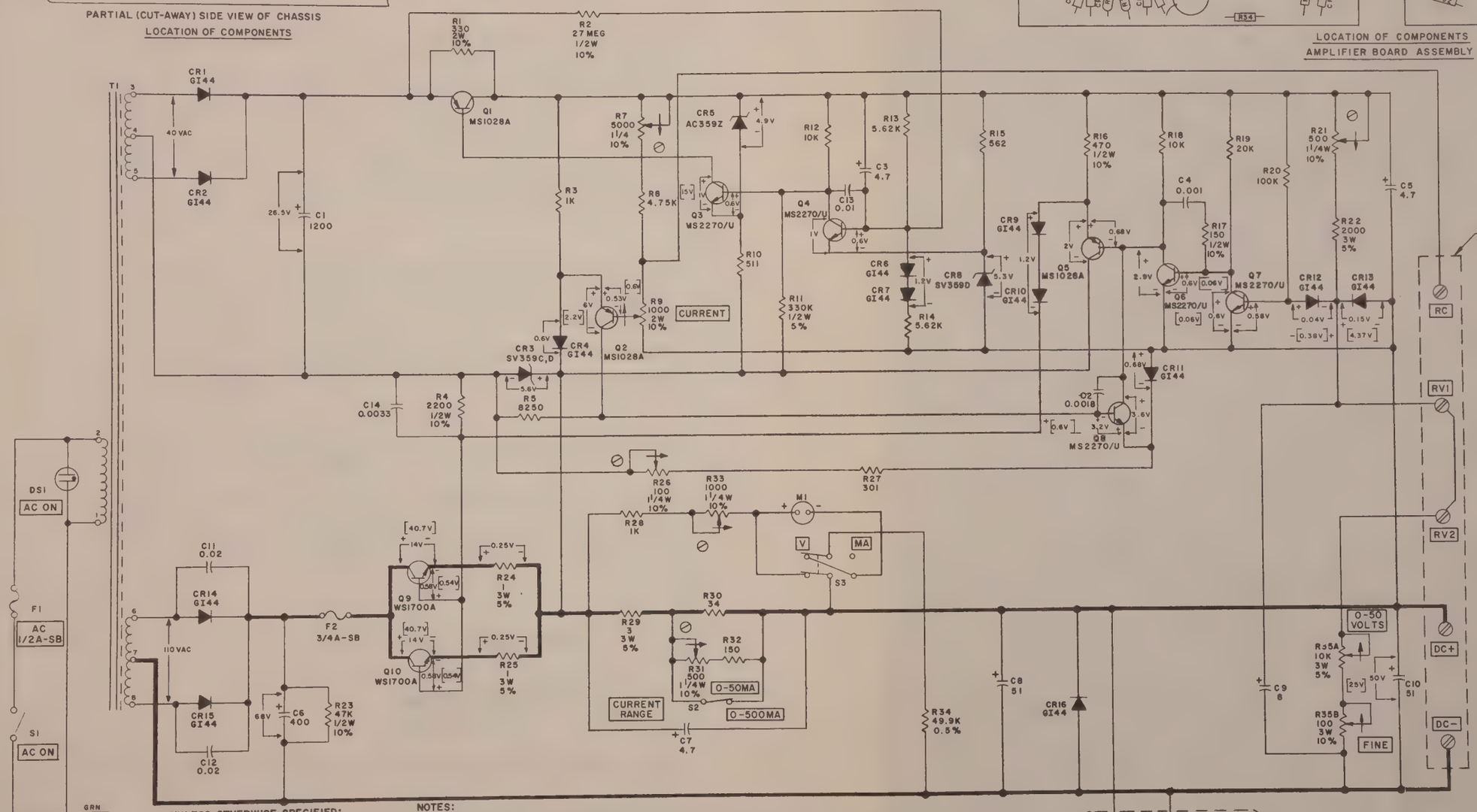


PARTIAL (CUT-AWAY) SIDE VIEW OF CHASSIS
LOCATION OF COMPONENTS





LOCATION OF COMPONENTS
AMPLIFIER BOARD ASSEMBLY



UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS ARE IN OHMS, 1/4W, 1%
ALL CAPACITORS ARE IN MICROFARADS

NOTES:
1. VOLTAGES INDICATED ARE MEASURED WITH 115V, 60HZ INPUT.
2. CONSTANT VOLTAGE MEASUREMENTS ARE MADE WITH 50 VDC OUTPUT AND A 500MA LOAD. THE CURRENT CONTROL, R9 IS SET TO IT'S MAX. CW POSITION AND RANGE SWITCH, S2 IN THE 500MA POSITION.
3. CONSTANT CURRENT MEASUREMENTS ARE MADE WITH A 500 MA OUTPUT INTO A 50Ω, 50W LOAD. THE VOLTAGE CONTROL, R35A&B ARE SET TO THE MAX. CW POSITION AND THE RANGE SWITCH, S2 IN THE 500 MA POSITION.
4. WHERE DUAL VOLTAGES ARE INDICATED, THOSE IN BRACKETS REFER TO CONSTANT CURRENT OPERATION.
5. WHERE SINGLE VOLTAGES ARE INDICATED, THEY APPLY TO BOTH MODES OF OPERATION.
6. MEASUREMENTS MADE WITH 20,000Ω/VOLT METER FOR DC AND 1000Ω/VOLT METER FOR AC. VOLTAGES ARE DC EXCEPT WHERE OTHERWISE INDICATED.

SYM	DESCRIPTION	APPD	DATE
D	ADDED NOTES AND VOLTAGES	JR	2/1/67
C	REVISED, ECN 1342	JR	12-8
B	REVISED, ECN 1337	JR	12-8
A	RELEASED.	JR	11-7

REVISIONS

DRAWING NO. PS-5005S-6 REV. D

TITLE MODEL 5005S
REGULATED DC SOURCE
0-50V, 0-500MA

DRAWN	CHECKED	APPROVED
JR		
DATE Dec 67	DATE 2-1-67 10-8	DATE 10/8/67

POWER DESIGNS INC.
NEW YORK

WARRANTY

POWER DESIGNS INC., warrants to the original purchaser, each instrument sold by us, or our authorized agents, and all the parts thereof, to be free from defects in material or workmanship under normal use and service within the specified ratings and operating conditions.

Its obligation under this warranty is hereby limited to the repair or replacement of any instrument, or part thereof, which is returned to us within one year after delivery, and which shall prove, after our examination, to be thus defective.

This warranty does not include the cost of transportation charges to and from the factory and/or the cost of packaging or crating of instruments for return to the factory, unless such instrument is returned within thirty (30) days from the date of original shipment as shown on the packing list or shipping documents, and prior written authorization for such costs is obtained from the factory.

The repair or replacement of an instrument, or any part thereof, does not void or extend the original warranty.

POWER DESIGNS INC., reserves the right to discontinue any instrument without notice, or to make modifications in design at any time, without incurring any obligation to make these modifications in instruments previously sold.

POWER DESIGNS INC.
Westbury, L. I., New York

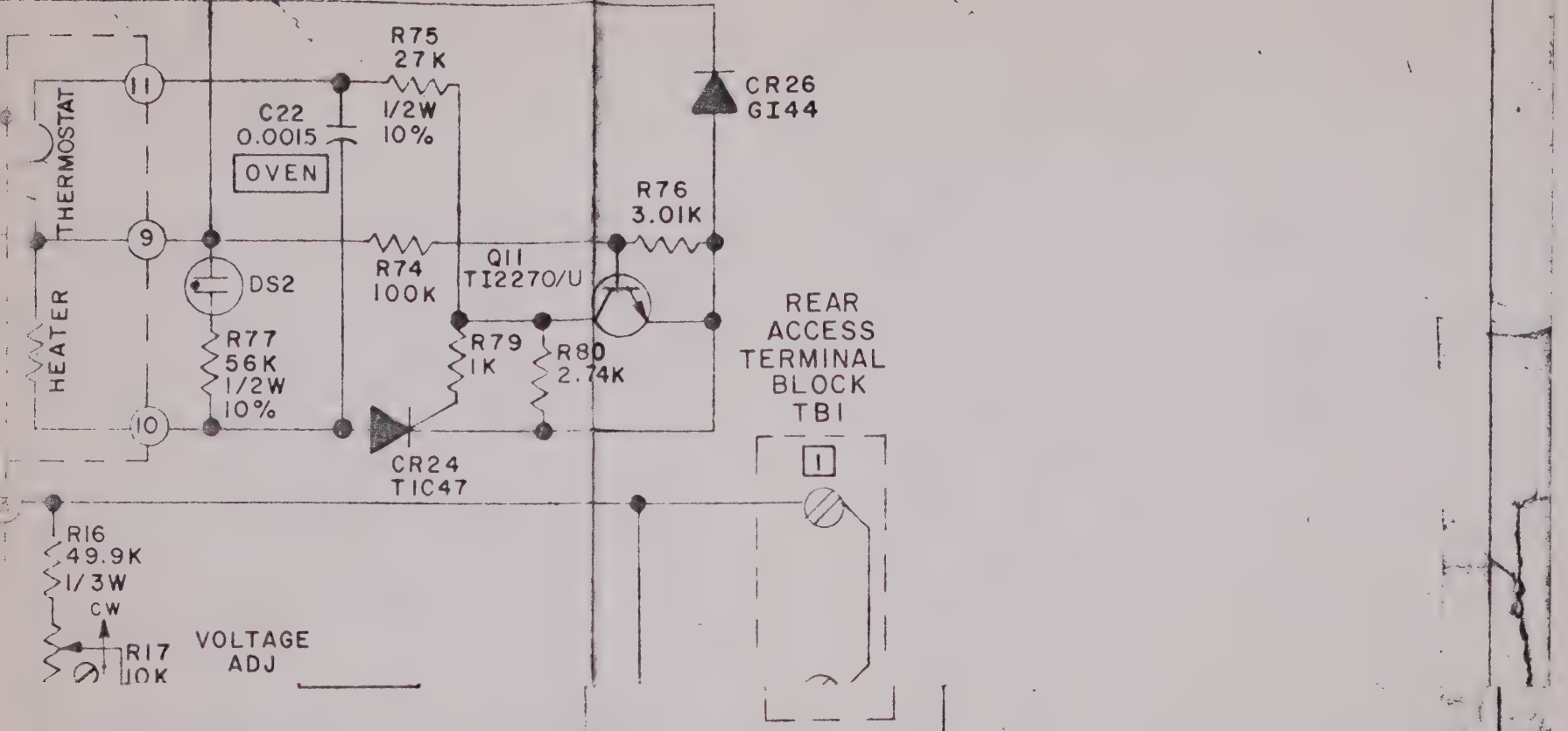
POWER DESIGNS PACIFIC, INC.
Palo Alto, California

SALES OFFICES

ARKANSAS, LOUISIANA, OKLAHOMA & TEXAS		
APPLIED SCIENCE ASSOCIATES	3707 Rawlins St., Dallas, Texas 75219	(214) 526-8316
	6218 Westheimer, Suite B., Houston, Texas 77027	(713) 781-1441
	7966 East 41 Street, Tulsa, Oklahoma 74145	(918) 627-6199
CALIFORNIA; RENO, NEVADA		
DYNAMIC ASSOCIATES	1011-E Cadillac Way, (San Francisco) Burlingame, Calif. 94010	(415) 344-2521
	5190 West Washington Blvd., Los Angeles, Calif. 90016	(213) 933-5833
INDIANA, ILLINOIS, WISCONSIN, MISSOURI, IOWA, MINNESOTA, N. & S. DAKOTA		
LOREN F. GREEN & ASSOCIATES	5218 West Diversey Ave., Chicago, Ill. 60639	(312) 286-6824
	6225 University Ave., N.E. Minneapolis, Minn. 55421	(612) 781-1611
ALABAMA, GEORGIA, FLORIDA, NORTH CAROLINA, SOUTH CAROLINA, TENNESSEE, MISSISSIPPI		
E. G. HOLMES & ASSOC.	3667 Clairmont Road, Chamblee, Ga. 30005	(404) 451-6161
	4862 Governors Drive W., Huntsville, Ala. 35805	(205) 837-6900
	316½ South Bumby , Orlando, Fla. 32803	(305) 241-2128
	430 W. Friendly Street, Greensboro, N. C. 27401	(919) 272-0855
ARIZONA, NEW MEXICO, UTAH, COLORADO, WYOMING, NEVADA (LAS VEGAS)		
HYTRONIC MEASUREMENTS INC.	4940 E. 39 Avenue, Denver, Colorado 80207	(303) 388-4081
	1017 North 3rd Street, Suite 9, Phoenix, Arizona 85004	(602) 253-6104
	2022 South Main Street, Salt Lake City, Utah 84115	(801) 466-4924
	205 San Pablo South East, Albuquerque, New Mexico 87108	(505) 268-3941
NEW YORK (S.), CONNECTICUT (FAIRFIELD COUNTY)		
QED ELECTRONICS	500 Nuber Avenue, Mount Vernon, N.Y. 10550	(914) 968-2200
NEW JERSEY, PENNSYLVANIA (E.)		
QED ELECTRONICS	2916 Federal Street, Camden, New Jersey 08105	(215) 925-8711
MARYLAND, DELAWARE, WASHINGTON, D.C., VIRGINIA		
QED ELECTRONICS	880 Bonifant Street, Silver Springs, Md. 20910	(301) 588-8134
NEW YORK (N.)		
OSSMANN INSTRUMENTS, INC.	101 Pickard Drive, Syracuse, New York 13211	(315) 454-2461
	3100 Monroe Avenue, Rochester, New York 14618	(716) 586-0380
	Vestal Parkway East, Vestal, New York 13850	(607) 785-9947
	P.O. Box 207, Wappingers Falls, New York 12590	(914) 297-7777
NEW ENGLAND		
HOWARD J. SCHUFT CO., INC.	815 Washington Street, Newtonville, Mass. 02160	(617) 527-5304 & 5
CONNECTICUT		
HOWARD J. SCHUFT CO., INC.	965 Dixwell Avenue, New Haven, Connecticut 06514	(203) UN 5-1365
WASHINGTON, OREGON, IDAHO, MONTANA, ALASKA, BRITISH COLUMBIA		
SHOWALTER-JUDD INC.	1806 S. Bush Place, Seattle, Washington 98144	(206) 324-7911
OHIO, PENNSYLVANIA (W.), MICHIGAN, INDIANA, KENTUCKY		
HARVEY TEPLITZ & CO.	3718 Salem Avenue, Dayton, Ohio 45406	(513) 277-9178
	26847 Grand River Ave., Detroit, Michigan 48240	(313) 537-9058
	3945 Meadowbrook Blvd., Cleveland, Ohio 44118	(216) 371-2044
CANADA		
R-O-R ASSOCIATES, LTD.	1470 Don Mills Road, Don Mills, Ontario	(416) 444-4403
	3825 Cavendish Blvd., Montreal 28, Quebec	(514) 482-8430
	1320 Carling Ave., Ottawa 3, Ontario	(613) 722-6531
	805 5th Street S.W., Calgary, Alberta	(403) 265-6470
FOREIGN		
ROCKE INTERNATIONAL CORP.	13 East 40 Street, New York, New York 10016	(212) MU 9-0200

POWER DESIGNS, INC.
1700 SHAMES DRIVE • WESTBURY, N.Y.
516 EDgewood 3-6200 TWX: 510-222-6561

POWER DESIGNS PACIFIC, INC.
3381 JUNIPERO SERRA • PALO ALTO, CALIFORNIA
415-321-6111 TWX: 910-373-1251



SYM.	DESCRIPTION	APPD.	DATE
G	REVISED, ECN 2390		2/4/04
F	REVISED, ECN 2359		1/21
E	REVISED, ECN 1928		11/5/-
D	REVISED, ECN 1813, 1819 & 1820		10/26/98
C	REVISED, ECN 1719		7/18/97
B	REVISED, ECN 1714		8/4/95
A	RELEASED		8/24/93

REVISIONS

DRAWING NO. PS-4010-15 REV. L

TITLE SCHEMATIC, MODEL 4010

SHEET 1 OF 2

Power Designs

positive output, negative output and chassis ground. Rear Panel - 4 screw terminals on a molded barrier block for positive output, negative output, chassis ground, remote voltage programming and remote sensing.

OTE SENSING. Two terminals are provided on a rear panel barrier block for remote sensing of the voltage at the load.

OTE PROGRAMMING. Rear panel barrier block terminals are provided for remote programming of the output voltage. The ratio of the programming resistance to the output voltage is 1000 ohms per volt. The programming accuracy is better than 0.01% of the resistance value, including the resistance of the programming leads.

ERING: Front panel volt-ammeter monitors the output voltage or current with an accuracy of ±2% of full scale. NOTE: This accuracy is considerably less than that of the power source.

RCUIT PROTECTION: The AC line and DC load circuits are separately fused. The AC line fuse is accessible at the rear of the unit. The DC load fuse is accessible on the amplifier board.

DICATOR LAMPS: Oven Lamp - Lights when AC input is applied and oven heater is energized (operates even when AC ON toggle switch is off). Lamp cycles on and off as oven maintains constant temperature environment for critical components. AC ON Lamp - Lights when AC ON switch is switched on.

3. MECHANICAL SPECIFICATIONS

MENSIONS: 8-3/8" x 4-3/4" x 11-9/16".

IGHT: 12 pounds.

NISH: Brushed anodized aluminum panel with etched black lettering. Dust cover finished in blue enamel; chassis and bottom plate, golden iridite.

CK PANEL ADAPTERS: Panel adapters are available for mounting either a single unit or two units side by side.

C14	Capacitor, plastic film, 6 μf, 100 vdc	98095	CP-6-10
C15	Capacitor, electrolytic, 680 μf, 50 vdc	98095	CE-68-1-
C16	Capacitor, electrolytic, 51 μf, 50 vdc	98095	CEX-51-
C17	Capacitor, plastic film, 0.22 μf, 200 vdc	98095	CP-22-2
C18	Capacitor, plastic film, 0.22 μf, 200 vdc	98095	CP-22-2
C19	Capacitor, ceramic disc, 10 pf, 600 vdc	98095	CC-14-6
C20, C21	Capacitor, plastic film, 0.1 μf, 200 vdc	98095	CP-17-2
CR1	Diode, silicon	98095	GI44
CR7, CR8	Diode, silicon, zener	98095	1N4881
CR9	Diode, silicon, zener	98095	TS825H2
CR10	Diode, silicon, zener	98095	TS825
CR11	Diode, silicon	98095	GI44
CR12	Diode, silicon, zener	98095	TS825G
CR13, CR14	Diode, silicon	98095	GI88
CR16 thru CR20	Diode, silicon	98095	GI44
CR21	Diode, silicon	98095	SI5A2
CR22, CR23	Diode, silicon	98095	GI44
CR24	Diode, silicon	98095	TIC47
CR25, CR26	Diode, silicon	98095	GI44
DS1, DS2	Indicator lamp (red)	98095	PLA-13
DS3	Indicator lamp (clear)	98095	PLA-15
F1	Fuse, 2 amperes, Slo-Blo	71400	MDL-2
F2	Fuse, 2 amperes, Fast-Blo	71400	AGC2
M1	Meter	98095	MVA-13
Q1	Transistor, silicon, NPN	98095	ST1700C
Q2	Transistor, silicon, NPN	98095	TI2270/
Q3	Transistor, dual, silicon, NPN	98095	MS2916
Q4	Transistor, silicon, PNP	98095	2N4888
Q5	Transistor, silicon, NPN	98095	ST1700C

Resistor, composition, 2.7 kΩ, ± 10%, 1/4 w	01121	CB2721
Resistor, composition, 1.8 kΩ, ± 10%, 1/4 w	01121	CB1821
Resistor, precision, metal film, 10 Ω, ± 1%, 0.4 w	98095	RW-100-1UR
Resistor, precision, metal film, 20 Ω, ± 0.5%, 0.4 w	98095	RW-200-6UR
Resistor, precision, metal film, 50 Ω, ± 0.5%, 0.4 w	98095	RW-500-6UR
Resistor, composition, 47 Ω, ± 10%, 1/4 w	01121	CB4701
Resistor, composition, 68 Ω, ± 10%, 1/4 w	01121	CB6801
Resistor, composition, 270 Ω, ± 10%, 1/4 w	01121	CB2711
Resistor, composition, 180 Ω, ± 10%, 1/4 w	01121	CB1811
Resistor, precision, metal film, 20 kΩ, ± .01%, 0.4 w	98095	RW-203-13UR
Resistor, composition, 47 kΩ, ± 10%, 1/4 w	01121	CB4731
Resistor, precision, metal film, 100 kΩ, ± 1%, 1/4 w	98095	RD-104-1QA
Resistor, composition, 27 kΩ, ± 10%, 1/2 w	01121	EB2731
Resistor, precision, metal film, 3.01 kΩ, ± 1%, 1/4 w	98095	RD-3011-1QA
Resistor, composition, 56 kΩ, ± 10%, 1/2 w	01121	EB5631
Resistor, precision, metal film, 1 kΩ, ± 1%, 1/4 w	98095	RD-102-1QA
Resistor, precision, metal film, 10 kΩ, ± 1%, 1/4 w	98095	RD-103-1QA
Resistor, composition, 56 kΩ, ± 10%, 1/2 w	01121	EB5631
Resistor, precision, metal film, 200 kΩ, ± 1%, 1/4 w	98095	RD-204-1QA
Resistor, precision, metal film, 2.74 kΩ, ± 1%, 1/4 w	98095	RD-2741-1QA
Switch, SPST	98095	ST-5
Switch, DPDT	98095	ST-16
Switch, rotary	98095	PS-2005-7-5
Switch rotary	98095	PS-2005-7-4(D)
Transformer	98095	TTM-4010-5(B)
Terminal block	75382	599-2004-7
Oven assembly	98095	PS-2005A-37
Oven	98095	PS-75-10-EC

CODE LIST OF MANUFACTURERS

Allen-Bradley Company	Milwaukee, Wisconsin
Bussman Manufacturing Division	St. Louis, Missouri
Kulka Electric Corporation	Mt. Vernon, New York
Power Designs, Inc.	Westbury, New York

www.manualsplus.com
1012066